

I. Listing of Claims

This Listing of Claims replaces without prejudice or disclaimer all previous listing of Claims.

1. (Currently Amended) A method of suppressing echo signals generated in a communication path comprising the steps of:

monitoring signals supplied to said communication path to ~~determine~~ generate an envelope of the power level of said monitored signals using an infinite impulse response filter, said IIR lowpass filter generating said envelope by solving the equation:

$$\text{AbsY} = (1 - \alpha) * \text{AbsY} + \alpha * \text{AbsY}_0$$

where alpha is a parameter of said IIR filter, Y is the power level of the current monitored signal, Y₀ is the power level of a previous monitored signal and AbsY and AbsY₀ are the absolute values of the power levels Y and Y₀ respectively; and

calculating an echo signal level by solving the equation:

$$\text{Echo} = \text{AbsY} / 10^{(A/20)}$$

where A is the minimum attenuation of echo signals in said communication path, said echo signal level being used to select a mask in the form of a string of n-bits, at least the most significant bits having a zero value; and

masking digitized signals received from said communication path as a function of the determined power level of said monitored signals by combining a string of n-bits with said digitized signals, at least the most significant bits of said string having a zero value with said selected mask.

2. Cancelled

3. Cancelled

4. Cancelled

5. Cancelled

6. Cancelled

7. Cancelled

8. Cancelled

9. (Previously Presented) The method of claim 1 wherein all of the bits of said string are zeros.

10. (Previously Presented) The method of claim 1 wherein at least the least significant bit of said string has a one value.

11. Cancelled

12. Cancelled

13. Cancelled

14. Cancelled

15. Cancelled

16. (Currently Amended) An echo suppressor to suppress echo signals generated in a communication path comprising:

a power level calculator ~~determining~~ generating an envelope following the power level of signals supplied to said communication path, said power level calculator including an infinite impulse response (IIR) lowpass filter to generate said envelope, wherein said IIR lowpass filter generates said envelope by solving the equation:

$$\text{AbsY} = (1 - \alpha) * \text{AbsY} + \alpha * \text{AbsY}_0$$

where alpha is a parameter of said IIR filter, Y is the power level of the current signal supplied to said communication path, Y₀ is the power level of a previous signal supplied to said communication path and AbsY and AbsY₀ are the absolute values of power levels Y and Y₀ respectively; and

a mask generator responsive to said power level calculator and generating masks, said mask generator calculating an echo signal level by solving the equation:

$$\text{Echo} = \text{AbsY} / 10^{(A/20)}$$

where A is the minimum attenuation of echo signals in said communication path, said echo signal level being used by said mask generator to select each mask, said masks being in the form of strings of n-bits, where n is a function of the power level of the signals supplied to said communication path, at least the most significant bits of said strings having zero values, said masks being applied to the digital signals received from said communication path thereby to suppress echo signals received from said communication path.

17. Cancelled

18. Cancelled

19. Cancelled

20. Cancelled

21. Cancelled

22. (Previously Presented) An echo suppressor as defined in claim 16 wherein all of the bits of said strings are zeros.

23. (Previously Presented) An echo suppressor as defined in claim 16 wherein at least the least significant bit of each string has a one value.

24. Cancelled

25. Cancelled

26. Cancelled

27. Cancelled

28. (Previously Presented) A method of suppressing echo signals generated in a communication path comprising the steps of:

monitoring signals supplied to said communication path to determine the power level of said monitored signals by solving the equation:

$$\text{Echo} = \text{AbsY} / 10^{(A/20)}$$

where A is the minimum attenuation of echo signals in said communication path, said echo signal level being used to select a mask to be combined with digitized signals received from said communication path;

generating an estimated echo signal and determining the power level thereof;

subtracting the estimated echo signal from a signal received from said communication path to yield a difference signal; and

masking said difference signal as a function of the determined power level of said monitored signals.

29. Cancelled

30. Cancelled

31. (Currently Amended) The method of claim 29 28 wherein during said masking a string of n bits is applied to said difference signal, where n is a function of the echo signal level, at least the most significant bits of said string having a zero value.

32. Cancelled

33. Cancelled

34. (Previously Presented) A method of suppressing echo signals generated in a communication path comprising the steps of:

monitoring signals supplied to said communication path;

generating an envelope of the power level of said signals with an infinite impulse response (IIR) lowpass filter by solving the equation:

$$\text{AbsY} = (1 - \alpha) \text{AbsY} + \alpha \text{AbsY}_0$$

where alpha is a parameter of said IIR lowpass filter, Y is the power level of the current monitored signal, Y_0 is the power level of a previous monitored signal and AbsY and AbsY₀ are the absolute values of power levels Y and Y₀ respectively;

performing power calculations to determine the power level of said signals and then to determine an echo signal level by solving the equation:

$$\text{Echo} = \text{AbsY}/10^{(A/20)}$$

where A is the minimum attenuation of echo signals in said communication path; and

masking digitized signals received from said communication path by using said echo signal level to select a mask to be combined with said digitized signals, said mask being a string of n-bits, where n is a function of the echo signal level, at least the most significant bits of said string having a zero value.

35. (Previously Presented) The method of claim 34 wherein all of the bits of said string are zeros.

36. (Previously Presented) The method of claim 34 wherein at least the least significant bits of said string has a one value.

37. (Previously Presented) An echo suppressor to suppress echo signals generated in a communication path comprising:

a power level calculator determining the power level of signals supplied to said communication path, said power level calculator including an infinite impulse response (IIR) lowpass filter to generate an envelope following the power level of said signals supplied to said communication path by solving the equation:

$$\text{AbsY} = (1 - \alpha) * \text{AbsY} + \alpha * \text{AbsY}_0$$

where alpha is a parameter of said IIR lowpass filter, Y is the power level of current signals supplied to said communication path, Y₀ is the power level of previous signals supplied to said communication path and AbsY and AbsY₀ are the absolute values of the power levels Y and Y₀ respectively; and

a mask generator responsive to said power level calculator and generating masks, said mask generator calculating an echo signal level by solving the equation:

$$\text{Echo} = \text{AbsY}/10^{(A/20)}$$

where A is the minimum attenuation of echo signals in said communication path, said echo signal level being used by said mask generator to select masks to be combined with digitized signals received from said communication path thereby to suppress echo signals received from said communication path, said masks being in the form of strings of n-bits, where n is a function of the echo signal level, at least the most significant bits of said strings having zero values.

38. (Previously Presented) An echo suppressor as defined in claim 37 wherein all of the bits of said strings have zero values.

39. (Previously Presented) An echo suppressor as defined in claim 37 wherein at least the least significant bit of each string has a one value.